ADDITIONAL NOTES ON DIMORPHANTHERA (ERICACEAE)

P. F. STEVENS

RECENT COLLECTIONS of *Dimorphanthera* F. Mueller, an interesting East Malesian genus in the Vaccinieae with close affinities to the Neotropical genus *Satyria* Klotzsch (Stevens, 1974), and the examination of type material at Bogor, Leiden, and Washington, have necessitated a number of changes in synonymy and the description of three species. These, as well as notes on a few additional species, are given below. A key to all the taxa now recognized in the genus, based on that of Sleumer (1967), may be obtained from the author.

In the following notes, the numbers are those given to the species by Sleumer (1967) in his thorough revision of the genus; those numbers preceded by a "V" refer to species included in *Vaccinium* by Sleumer, but since transferred to *Dimorphanthera* (Stevens, 1974). Herbarium abbreviations are those given in Holmgren, P. K., and W. Keuken, *Index Herbariorum*. ed. 6. Reg. Veg. 92. Utrecht, 1974.

V2A. Dimorphanthera albida P. F. Stevens, sp. nov.

A speciebus aliis Dimorphantherae sect. Pachyanthae in lamina mediocra utrinque glanduloso-punctata, inflorescentia albida racemosa in siccitate brunnea, calyce limbo suberecto 1.8–2.4 mm. longo dentibus circa 1 mm. longis, differt.

Frutex erectus circa 2 m. altus. Ramulus glaber circa 2.5 mm. latus, lineis elevatis rotundatis e petiolis decurrentibus; perulae gemmarum late ovatae circa 1.2 mm. longae et 2 mm. latae. Petiolus 0.6–1.3 cm. longus, glaber; lamina elliptica, (2–)2.5–7.3 cm. longa et (1.2–)1.5–3.5 cm. lata, apice rotundata, basi attenuata, margine subintegra pilis nigris setuloso-glandulis praedita (pari imo basi grandiore quam aliis), utrinque punctis nigris praedita, sed infra punctis densioribus quam supra, pli-nervata, nervis paribus 2 vel 3 usque ad 2 cm. e basi ortis, supra subplana infra valde elevatis, rete venarum utrinque subelevata. Inflorescentiae e axillis foliatis ortae, racemosae, cum 15–20 floribus, axibus 2.5–3 cm. longis, albidis, glabris, valde angulatis; bracteae late ovatae, 3–4.5 mm. longae, glabrae; pedicelli 11–13 mm. longi, angulati, cum calycibus articulati, glabri, bracteolis oppositis late ovatis 3–3.5 mm. longis, 3–4.5 mm. e basibus insertis, haud connatis. Calyx albidus, glaber, tubo 3.5–4 mm. longo et 3.7–4 mm. lato basi rotundata vel subtruncato, interdum versus apicem leviter expansus, limbo suberecto 1.8–2.4 mm. longo, lobis 5 triangularibus circa 1 mm. longis fisso; corolla albida, percrassa, campanulata, 5–7 mm. longa et 6–10 mm. lata (ubi complanata), glabra, fere usque ad basem bistratosa, in lobis 5 triangularibus 2–2.5 mm. longis fissa; stamina 10, ecalcarata, filamentis circa 1.5 mm. longis, versus apicem pilis unicellularibus marginibus et pagina interiore in lineis praeditis, antheris haud lignosis

connectivis pilis praeditis, basibus rotundatis, papillatis, deorsum intendentibus, antheris maioribus circa 3.5 mm. longis, thecis circa 1.5 mm. longis, tubulis divergentibus circa 2 mm. longis poris circa 1 mm. longis, antheris minoribus circa 3.2 mm. longis, thecis circa 1.5 mm. longis, tubulis erectis circa 1.7 mm. longis poris circa 1 mm. longis; ovarium inferum 5-loculare; discus glaber; stylus circa 7.5 mm. longus; stigma circa 0.7 mm. latum, 5-lobatum. Fructus haud cognitus.

TYPE: Papua New Guinea, Morobe District, Bulldog Road, Edie Creek, 2700 m., 5 Aug. 1975, *Vander Kloet 35875* (holotype, A).

DISTRIBUTION. Papua New Guinea, known only from a single collection.

ECOLOGY. *Dimorphanthera albida* was collected in fern heath at 2700 meters altitude; it was in flower in August, the whole inflorescence, apart from the purple anthers and green styles, being white.

Dimorphanthera albida is probably most closely related to *D. ingens* (Sleumer) P. F. Stevens from which it differs in several characters. Its leaf blades are half the size of those of *D. ingens* and have fewer main lateral veins, even in those leaves which are of comparable size and on plants of like size. The inflorescence of *D. ingens* dries blackish rather than brownish, the larger calyx limb is subspreading and has much longer lobes, and the corolla is greenish to pink, never white. Both species have leaf blades of similar shape which are punctate on both surfaces, and many-flowered, racemose inflorescences.

The phellogen of *Dimorphanthera albida* is initiated inside the ring of pericyclic fibers.

It may be noted here that the paratype of *Vaccinium amplifolium* F. Mueller var. *giganteum* Sleumer (equals *D. amplifolia* (F. Mueller) P. F. Stevens), *NGF 8350* (A), is a specimen of *D. ingens*. Its leaf blades are punctate on both surfaces, it has racemose, black-drying inflorescences (they tend to be corymbose in *D. amplifolia*), its pedicels lack glandular hairs, and its flowers, although still in bud, clearly have large calyx lobes.

V3. Dimorphanthera fissiflora (Sleumer) P. F. Stevens.

Honeyeaters and lorikeets are recorded as feeding on the blossoms (*Bulmer 142* (LAE), N. Kaironk Valley, Madang).

7. Dimorphanthera kempteriana Schlechter.

The flowers of this species are used by the local people as a natural lure to catch birds. "Flowers contain nectar which attracts small birds. A noose is placed round the flower and pulled tight as the bird sucks the nectar" (field notes of *ANU 2018* (LAE), Western Highlands).

11. Dimorphanthera amblyornidis (Becc.) F. Mueller.

Dimorphanthera amblyornidis (Becc.) F. Mueller var. **amblyornidis** — see Sleumer, 1967, for references, excl. *D. arfakensis* J. J. Sm.

D. amblyornidis (Becc.) F. Mueller var. *moorhousiana* (F. Mueller) Sleumer — see Sleumer, 1967, for references.

Dimorphanthera amblyornidis (Becc.) F. Mueller var. **steinii** (Sleumer) P. F. Stevens, comb. et stat. nov.

D. steinii Sleumer, Bot. Jahrb. **70:** 117. 1939. TYPE: Nederlands-Neu-Guinea, Weyland Gebirge, 2100 m., 10 Oct. 1931, *Stein 412* (holotype, B, destroyed).

Sleumer (1967) distinguished the two varieties of *Dimorphanthera amblyornidis* by the distribution of indumentum: in *D. amblyornidis* var. *moorhousiana* the pedicel, calyx, outside of the corolla, and disc (usually) were quite glabrous, while in var. *amblyornidis* the outside of the corolla was always puberulent, and the pedicels and disc also often had more or less well developed indumentum. Unfortunately, this separation is not tenable. The majority of the specimens of var. *amblyornidis* have glabrous pedicels (but see below); three which have not, *Gjellerup 1006* (the type of *D. arfakensis*), *Kanehira & Hatusima 13619* (cited as *D. arfakensis* by Kanehira & Hatusima, 1942), and *Kostermans 2275* (all cited as *D. amblyornidis* var. *amblyornidis* by Sleumer, 1961), are to be excluded from *D. amblyornidis*. The first two specimens have anthers which are strongly incurved at the base, the major anthers being 6–6.7 mm. long, whereas in *D. amblyornidis* the anthers are downwardly pointed at the base, the major anthers being up to only 5.5 mm. long. These specimens are discussed below under *D. arfakensis*. In the other collections examined, there are all intermediates between specimens with glabrous corollas and discs (var. *moorhousiana*) and puberulent corollas and discs (var. *amblyornidis*), and specimens with corollas that are clearly puberulent when in bud may be glabrous or almost so at anthesis (e.g. *NGF 47000*, Milne Bay Province). Only two specimens seen have hairs on the calyx and the pedicel: *LAE 56314*, from Milne Bay Province, where the hairs are extremely few, and *BW 6878*, from the Vogelkop, which, although with more obvious indumentum, is no more than sparsely pubescent.

In most floral details the original description of *Dimorphanthera steinii* and the specimens I have seen that have been assigned to it agree with *D. amblyornidis*. The only difference is that in *D. steinii* the calyx and pedicels are "subdensely gray pubescent" (Sleumer, 1967). Sleumer noted that the two species were close, and, in view of the agreement of the two in all matters except for indumentum development, *D. steinii* is reduced to varietal rank under *D. amblyornidis*.

11A. **Dimorphanthera arfakensis** J. J. Sm. Nova Guinea **12**: 152. *t. 41*. 1914; Sleumer, Bot. Jahrb. **70**: 118. 1939. TYPE: Neu-Guinea, Arfak Gebirge, Angi Meer, 1900 m., 26 April 1912, *Gjellerup 1066* (isotype, L).

Dimorphanthera arfakensis may be distinguished from *D. amblyornidis* by its leaves, which are strongly punctate on the upper surface, its more or less turbinate calyx tube which is narrowly attenuate for ca. 1.5 mm. at

the base and only obscurely articulated with the pedicel, and its anthers, which are incurved at the base. The major anthers are 6–6.5 mm. long, and the spurs are free from the tubules for about one third of their length. Although *D. amblyornidis* may have a few glandular hairs on the upper surface of the lamina, they are practically invisible in the adult leaf. The calyx tube at anthesis is usually rounded at the base and is clearly articulated with the pedicel, only rarely being narrowly attenuate for ca. 1 mm.

The status of *Dimorphanthera afarkensis* is still unclear. The characteristics noted above readily distinguish it from *D. amblyornidis*, and *Kostermans 2275* (in fruit) has the indumentum characteristic of the type. However, I have not included *Kanehira & Hatusima 13619* (cited as *D. arfakensis* by Kanehira & Hatusima, 1942) in my concept of *D. arfakensis*. This specimen has anthers like those of *D. arfakensis* (the major anthers are about 6.8 mm. long), but the calyx tube is rounded at the base and is clearly articulated with the pedicel; there are only a few glandular hairs on the upper surface of the lamina. (The duplicate of *Kanehira & Hatusima 13619* at the Arnold Arboretum is in late bud and is not very well pressed.) More collections of this complex from the Vogelkop and from the Moluccas, where the poorly known, but related, *D. pulchra* J. J. Sm. occurs, are sorely needed, but the type specimen of *D. arfakensis* is not part of *D. amblyornidis* as circumscribed above, and it is best to maintain it as a distinct species for the time being.

13. **Dimorphanthera apoana** (Merrill) Schltr.

Dimorphanthera apoana (Merrill) Schltr. var. **apoana** — see Sleumer, 1967, under the species for references.

Dimorphanthera apoana (Merrill) Schltr. var. **mindanaensis** (Merrill) P. F. Stevens, comb. et stat. nov.

D. mindanaensis Merrill, Philip. Jour. Sci. **20:** 418. 1922. TYPE: Mindanao, Misamis Province, Mt. Malindang, 1700 m., *FB 4708* coll. *Mearns & Hutchinson* (holotype destroyed).

Although the type specimen of *Dimorphanthera mindanaensis* has been destroyed, I have seen *BS 38537* (US), the paratype. In details of the flower, including anther type, it is identical to *D. apoana*, except that it has an entirely glabrous corolla. In *D. apoana* the corolla is more or less pubescent outside, but even when Merrill described *D. mindanaensis*, he thought that the character by which he distinguished it from *D. apoana*, corolla pubescence, was one of only moderate weight. Although most specimens of *D. apoana* have yellowish hairs over the whole length of the corolla, in *PNH 1395* such hairs are restricted to the apex. The only other difference separating the two taxa is in the punctation of the lower surface of the lamina: *BS 38537* is epunctate below; the flowering specimens of *D. apoana*, including the type, are punctate below. Both taxa have unicellular hairs on the perulae and petioles. Neither corolla indumentum nor punctation of the lamina is a very strong character in *Dimorphanthera*, so

it seems best to reduce *D. mindanaensis* to varietal rank under *D. apoana*.

Apart from the paratype, one other collection can be placed in *Dimorphanthera apoana* var. *mindanaensis*. *BS 38914* (A, US), from Mt. Candoon, Bukidnon subprovince, Mindanao, is in fruit, but the lower surfaces of its leaf blades are epunctate.

54. Dimorphanthera calodon Sleumer.

This species was reported to be fairly common when initially collected on the Murray Pass, Central Province, but it was not recollected for forty years, despite the rather frequent visits of collectors to this general area. However, it has recently been found along the Bulldog Road, Morobe Province, from 2550 to 2800 meters altitude, and is apparently locally common there. The specimens from the Bulldog Road (*Pratt 17* (LAE), *Allison NG 106* (LAE), *144* (LAE), *Vander Kloet 211875* (A)) agree excellently with the type.

64A. Dimorphanthera napuensis P. F. Stevens, sp. nov.

A speciebus aliis Dimorphantherae in lamina margine crenulata infra punctis haud ornata, inflorescentiis cum 5–10 floribus, corolla in vivo tubulari, mediocra, in siccitate valde complanata, campanulata, et antheris ecalcaratis differt.

Frutex nitens. Ramulus circa 2.5 mm. latus, glaber, lineis elevatis rotundatis e petiolis decurrentibus; perulae gemmarum ovatae, 0.8–2 mm. longae. Petiolus 3–11 mm. longus, glaber; lamina ovata, 3.8–14.5 cm. longa et 2–8.2 cm. lata, apice (breviter) acuminata, versus basem rotundata base decurrens, margine crenulata pilis nigris setuloso-glandulosis in incisis crenulationum et pari pilis similibus sed robustioribus junctionem petioli laminaeque praedita, aliter omnino glabra, venatione pli-nervata, nervis paribus tribus usque ad 1.5(–2.5) cm. e basi ortis, costa et nervis lateralibus supra leviter impressis infra elevatis, rete venatum supra obscura infra leviter elevata. Inflorescentiae e axillis foliatis vel defoliatis ortae, breviter racemosae, axibus (0.4–)1–1.8 cm. longis, glabris; bracteae late ovatae, 1.2–2.2 mm. longae; pedicelli 0.6–1.4 cm. longi, cum calycibus articulati, glabri, bracteolis suboppositis 1.5–2 mm. longis, 1.5–4.5 mm. e basibus pedicellorum insertis, versus axem inflorescentiae connatis ab axe liberis. Calyx viridis, glaber, tubo 2–2.8 mm. longo et 3–3.5(–4) mm. lato basi rotundato, limbo patenti (1.8–)2–2.8 mm. longo, lobis 1–1.4 mm. longis, mucronulatis, marginibus (prope apicem exceptis) incrassatis. Corolla rubra, carnosa, in siccitate subcampanulata, 2.2–3.1 cm. longa et apice 1–1.8 cm. lata, glabra, haud bistratosa, lobis 5 late triangularibus 1.7–2 mm. longis; stamina 10, staminibus maioribus 7.3–8 mm. longis, staminibus minoribus 6–7 mm. longis, filamentis 1.5–2.5 mm. longis, glabris, antheris lignosis ecalcaratis (vel calcaribus minutissimis ornatis — *Brass 11485*), glabris (connectivis pilis parvis adscendentibus praeditis et basibus antherarum papilloso-pilosis exceptis), basibus subacutis plus minusve ad interiorem intendentibus, interdum prope basem appendiculis circa 0.15

mm. longis praeditis (*Brass 11084*), tubulis poris circa 2 mm. longis, antheris maioribus 5–6.2 mm. longis, tubulis leviter divergentibus circa 2.6 mm. longis, antheris minoribus 3.8–4.8 mm. longis, tubulis erectis circa 2.2 mm. longis; ovarium inferum 5-loculare; discus glaber; stylus 3.4–4 cm. longus; stigma circa 1 mm. latum. Fructus haud cognitus.

TYPE: Irian Jaya, environs de Wamena (vallée de la Balim), Napua, 2100 m., 13 Avril 1973, *Raynal 17114* (holotype, P; isotype, A).

DISTRIBUTION. Irian Jaya.

ADDITIONAL SPECIMENS SEEN. **Papuasia.** IRIAN JAYA. Snow Mountains: Wiligimaan, Baliem, 2000 m., *BW 12555* (A); Bele River, 18 km. N.E. of Lake Habbema, 2350 m., *Brass 11485* (A); Bele River, 2200 m. camp, *Brass 11084* (A).

ECOLOGY. *Dimorphanthera napuensis* is a sprawling or scandent shrub growing in valley forest, forest openings, or young secondary forest from 2000 to 2350 meters altitude. Specimens in flower have been collected in April, June, and November.

LOCAL NAME. "Howaijok" (Dani).

Dimorphanthera napuensis may be recognized by its strongly crenulate leaf margins, its entirely glabrous leaves (apart from the marginal, black, setular-glandular hairs), its shortly racemose inflorescences with 5–10 flowers, its easily flattened, tubular corolla (which becomes subcampanulate on drying), and its ecalcarate (or practically so) anthers. It has been confused with *D. wrightiana* (Koord.) J. J. Sm. (incl. *D. d'armandvillei* J. J. Sm.), but that species has leaf blades which are cuneate to rounded at the base and entire at the margin (although there are setular-glandular hairs there). *Dimorphanthera wrightiana* also usually has ca. three-flowered inflorescences (up to seven-flowered in the type of *D. d'armandvillei*?) and the flowers themselves are relatively thickly carnose, drying tubular and less than 2 cm. long.

Flowers of *Dimorphanthera napuensis* preserved in alcohol have an erect calyx limb and a cylindrical corolla 3.1 cm. long and 1.4 cm. across that is gradually narrowed both towards the base and the apex, the latter being 1.1 cm. across.

The phellogen in the stems of *Brass 11084* is initiated inside the ring of pericyclic fibers. All specimens have a two-layered hypodermis, although it is locally three-layered in places in *Brass 11084*.

64B. Dimorphanthera wisselensis P. F. Stevens, sp. nov.

A speciebus aliis Dimorphantherae in folia subovata margine integra pilis setuloso-glandulosis destitutae sed pagina infra arcte nigro-punctata, inflorescentia pauciflora subfasciculata, pedicellis tenuibus, flore tubuloso probabiliter tenuiter carnoso in siccitate subcampanulata, et antheris ecalcaratis differt.

?Liana. Ramulus circa 2 mm. latus, glaber, lineis elevatis rotundatis e petiolis decurrentibus; perulae gemmarum ovatae, circa 2 mm. longae. Petiolus 6–10 mm. longus, glaber; lamina plus minusve ovata, 7.1–10 cm. longa et 2.3–3.6 cm. lata, apice acuta, base acuta vel cuneata, margine integra, pilis setuloso-glandulis etiam basi, ut videtur, destituta, pagina infra subdense glanduloso-punctata, venatione pli-nervata, nervis lateralibus paribus 2–3 usque ad 1.5 cm. e basi ortis, costa et nervis lateralibus supra subimpressis infra elevatis, rete venarum supra obscura infra leviter elevata. Inflorescentiae subfasciculatae e axillis defoliatis ortae cum circa 6 floribus, axibus usque ad 3 mm. longis; bracteae ovatae, circa 1.5 mm. longae; pedicelli 2.2–3 cm. longi et circa 0.5 mm. lati, cum calycibus articulati, glabri, bracteolis subopppositis circa 1.5 mm. longis, 3–5 mm. e basibus pedicellorum insertis, versus axem inflorescentiae subconnatis ab axe liberis. Calyx glaber, tubo 2–2.5 mm. longo et 2.3–3.2 mm. lato basi rotundato vel truncato, limbo subrecurvato circa 0.8 mm. longo, fere usque ad basem in lobis 5 triangularibus diviso; corolla tenuiter carnosa, in siccitate subcampanulata, 1.6–1.9 cm. longa et 0.8–1.2 cm. lata, glabra, haud bistratosa, lobis 5 triangularibus circa 3 mm. longis; stamina 10, staminibus maioribus circa 6.8 mm. longis et staminibus minoribus circa 5.2 mm. longis, filis circa 1.5 mm. longis, versus apices marginibus pilis praeditis, antheris lignosis, basibus leviter incurvatis, glabris (pilis connectivis praeditis exceptis), antherae maioribus circa 5 mm. longis, tubulis leviter divergentibus circa 3 mm. longis, poris circa 2 mm. longis, antheris minoribus circa 3.7 mm. longis, tubulis erectis circa 2 mm. longis, poris circa 1.2 mm. longis; ovarium inferum 5-loculare; discus glaber; stylus circa 2.3 cm. longus; stigma vix expansum. Fructus haud cognitus.

TYPE: Dutch New Guinea, Wissel Lake Region, Bivouac XII–Bivouac XIV, 7 Jan. 1939, *Eyma 4247* (holotype, BO).

DISTRIBUTION. Known only from the one collection from Irian Jaya.

Dimorphanthera wisselensis may be recognized by the total absence of setular-glandular hairs on the margin of the lamina, apparently even at the base, and the presence of glandular spots on the lower surface of the lamina, the small inflorescence, the relatively long, slender pedicels, the short calyx lobes, the small corolla that flattens on drying, and the ecalcarate anthers.

Eyma 4247, the type specimen of *D. wisselensis*, was cited as *D. wrightiana* by Sleumer (1961), but the characters noted above readily distinguish it from that species.

66. Dimorphanthera tedentii P. F. Stevens.

The ovaries of this species were described as being 5-locular; they are, in fact, incompletely 10-locular. (*Dimorphanthera amoena* Sleumer and *D. velutina* Schltr. are the only other species with similar ovaries.)

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